

CLAIMS

What is Claimed is:

5 1. A television entertainment system having two-way communication capability with a hand-held remote device accessing an external information source, comprising:

 a television receiver adapted to receive television programming content; and

10 a television set top box adapted to receive program related information over a broadcast channel and transmit the program related information to the hand-held remote device,

 wherein the hand-held remote device is adapted to visually render information received over a broadcast channel and synchronize
15 delivery of the program related information with delivery of related information from the external information source.

 2. The system of claim 1, wherein said television set top box includes a vertical blanking interval data formatter adapted to reformat vertical blanking interval data to be compatible with different forms of media, thereby
20 rendering hand-held remote device compatible with a broad range of media formats.

 3. The system of claim 1, wherein said television set top box includes a command processor adapted to receive a command requesting vertical blanking interval data, retrieve requested data from a vertical blanking
25 interval data buffer, and transmit the data to the hand-held remote device through a wireless interface, wherein the processor is further adapted to receive a command for controlling a remotely controllable device, and send appropriate commands to an infrared transmitter.

 4. The system of claim 1, wherein said television set top box
30 includes a tuner adapted to tune a specific channel of a television broadcast signal.

5. The system of claim 1, wherein said television set top box includes a demodulator adapted to demodulate a channel of a television broadcast signal.

6. The system of claim 1, wherein said television set top box
5 includes a vertical blanking interval decoder adapted to receive a television channel and to decode vertical blanking interval data transmitted in that channel.

7. The system of claim 1, wherein said television set top box
10 includes a vertical blanking interval parser adapted to continuously collect vertical blanking interval data and store it in a vertical blanking interval data buffer.

8. The system of claim 1, wherein said television set top box includes a pluggable tuner and decoder module.

9. The system of claim 1, wherein said television set top box
15 includes a switch adapted to route vertical blanking interval data between a vertical blanking interval data buffer and a media device.

10. The system of claim 1, wherein said television set top box
20 includes a media bridge having a data formatter and a media interface, wherein the data formatter reformats the data stream received from the integrated decoder to be compatible with the media interface, and once the data is reformatted to a predetermined media type, it is transmitted through the media interface to an external device.

11. The system of claim 1, wherein the hand-held remote device
25 includes a vertical blanking interval buffer manager adapted to handle interaction between the hand-held remote device and a remotely controllable device.

12. The system of claim 11, wherein the buffer manager has a
30 vertical blanking interval parser, has a vertical blanking interval buffer with time stamped and channel stamped contents, and is adapted to enforce a data purge policy removing data from the buffer based on at least one of:

- (a) a fixed duration;
- (b) a duration customizable by a user;

- (c) a data purge command initiated by a user;
- (d) a data purge initiated upon switch of channel;
- (e) a data purge initiated upon termination of a television program; and
- 5 (f) a data purge initiated upon receipt of a trigger.

13. The system of claim 1, wherein said hand-held remote device includes a first input receptive of information from an external source, and a second input receptive of the program related information, and a user interface application receptive of user input, wherein the device is adapted to
10 retrieve the programming information in response to a request from a user.

14. The system of claim 1, wherein said hand-held remote device includes a synchronization engine adapted to synchronizes vertical blanking interval data with content downloaded from the external information source, thereby permitting the user to receive real-time supplementary program lists
15 and information related to the currently-viewed programs.

15. The system of claim 1, wherein said set-top box includes a digital tuner, a demodulator that outputs a transport stream from a digital broadcasting signal, and a transport stream decoder that splits the transport stream into a data section and an audio visual section.

20 16. The system of claim 15, wherein said set-top box includes a data buffer caching the transport stream.

17. The system of claim 15, wherein said set-top box includes an audio-visual decoder decoding the audio-visual section.

25 18. The system of claim 17, wherein said set-top box includes a digital port communicating the audio-visual section to a digital television.

19. The system of claim 17, wherein said set-top box includes a digital to analog encoder adapted to encode the audio-visual section and communicate the section to an analog television.

30 20. A method of delivering information to a television viewer via a hand-held device, comprising:

receiving programming information extracted from a television broadcast channel;

accessing additional information via an external information source;

identifying related information among the additional information based on the programming information; and

5 synchronously delivering the programming information and the related information to a user.

21. The method of claim 20, comprising receiving the television broadcast signal.

22. The method of claim 20, comprising extracting programming
10 information from the channel of the television broadcast signal.

23. The method of claim 20, comprising communicating the programming information from a set top box to a hand-held device accessing the external information source.

24. The method of claim 20, comprising continuously decoding
15 vertical blanking interval data and buffering the vertical blanking interval data as the programming information.

25. The method of claim 20, comprising formatting vertical blanking interval data to render it compatible with a broad range of types of additional data.

20 26. The method of claim 20, comprising routing vertical blanking interval data between a source of vertical blanking interval data and a media device.

27. The method of claim 20, comprising extracting a transport stream from a digital broadcasting signal.

25 28. The method of claim 27, comprising splitting the transport stream into a data section and an audio-visual section.

29. The method of claim 28, comprising caching the audio-visual section.

30 30. The method of claim 27, comprising decoding the audio visual section.